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REC'D 17 APR 2002


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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference 1351827.0072 | | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/CA00/01441 | International filing date (day/month/year) 08/12/2000 | Priority date (day/month/year) 10/12/1999 | |
| International Patent Classification (IPC) or national classification and IPC H04L29/12 | | | |
| Applicant MOSAID TECHNOLOGIES INCORPORATED et al. | | | |
| <p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 4 sheets.</p> | | | |
| <p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application | | | |
| Date of submission of the demand 11/06/2001 | | Date of completion of this report 15.04.2002 | |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | | Authorized officer Kappatou, E Telephone No. +49 89 2399 7521 | |



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International application No. PCT/CA00/01441

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):
Description, pages:

1-47 as originally filed

Claims, No.:

1-21 as received on 14/03/2002 with letter of 14/03/2002

Drawings, sheets:

1/34-34/34 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

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☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 15-21.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 15-21 are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Yes: Claims 1-14

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| | | | |
|-------------------------------|------|--------|------|
| | No: | Claims | |
| Inventive step (IS) | Yes: | Claims | 1-14 |
| | No: | Claims | |
| Industrial applicability (IA) | Yes: | Claims | 1-14 |
| | No: | Claims | |

2. Citations and explanations
see separate sheet

Re Item I

Basis of the report

1. The amendments filed with the letter dated 14.03.2002 introduce subject-matter which extends beyond the content of the application as filed, contrary to Article 34(2)(b) PCT.
2. Originally filed independent claims 1, 8 and 15 refer to a multi-level search in a first and a second lookup unit for a result. Amended claims 1, 8 and 15 refer to a **sequential** multi-level search.
3. In the original disclosure of the application it is mentioned that a further or subsequent search may be required. However there is no reference of a sequential searching.
4. Since no basis for such an extension can be found in the application as filed, the above amendment shall be ignored.

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

Although claims 1 and 15 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

Hence, claims 15 to 21 do not meet the requirements of Article 6 PCT.

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The subject-matter of claim 1, as far as the claim can be understood (see following paragraph 4) is new and involves an inventive step, Article 33(2)(3) PCT.
 - 1.1 Claim 1 refers to a lookup table with a first multi-level lookup unit, adapted to receive a key and to provide a first result through a multi-level search for a longest prefix match of the key.
 - 1.2 Such a lookup table is disclosed in document D1: US 5 386 413.
 - 1.3 The subject-matter of claim 1 differs from this known lookup table in that it discloses a second multi-level lookup unit, adapted to receive the key and to provide a second result through a multi-level search for a longest prefix match. Both lookup units are adapted to receive the key in parallel and adapted so that only one provides the final result for the key.
 - 1.4 The problem to be solved by the present invention may therefore be regarded as providing a more efficient lookup table.
2. Such a solution cannot be derived from the cited prior art.
 - 2.1 Document D1 discloses a multilevel hierarchical routing table lookup comprising only one 3-level unit, where each of the levels provide in parallel a result of an exact match search for only a part of the key, that corresponds to their hierarchical level.
 - 2.2 Document D2: US-A-5 329 618 refers to a lookup table, comprising a RAM and a CAM, that are searched simultaneously for exact match of a given address.
 - 2.3 Document D3: US-A-5 479 401 discloses a table lookup mechanism for selecting the destination for an ATM cell, including two tables. The first table is for the VPI and the second for the VCI, so that both the results of the two tables are needed

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for routing.

3. The above applies also for the subject matter of the method claim 8, which corresponds to claim 1.
4. Claims 1 and 8 do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The functional statement, according to which the final result is **dependent** on the first and second results, does not enable the skilled person to determine which technical features are necessary to perform the stated functions.

In addition, it is not clear if the key or the final result is "stored in only one of the lookup units".